

DETAILED ACTION

1. USPTO has received **Amendment** (compliant response on July 18, 2008) and **IDS** (1 page) filed on May 5, 2008 and June 12, 2008 respectively, which is in response to Non-Final action filed on February 6, 2008. With such an amendment, **Claims 1-2 are amended; new four independent Claims 25-28 are added, Claims 13-22 and 24 are still withdrawn from consideration, while Claims 7-10 are cancelled.** To be more specific, dependent **Claim 12** is now rewritten as independent form, while all Claims 1-6 and 11 (product) is rewritten in the form as a process of making. The derived Claim 23 is thereby joined with Claim 12.

Interview Summary of June 12, 2008: Attorney Abraham Rosner calls on June 20, 2008 regarding the Notice of Non-Compliant Amendment filed on June 18, 2008. The Examiner's notice is based on the fact that all composition claims are improperly rewritten into process claims during the course of examining. However, Attorney points out that Claim 12 is still kept as a composition claim although it is also amended. This is for PTO record purpose. Examiner points out a response in this regard is still needed for further office action. Examiner Henry Hu, au 1796, June 20, 2008.

2. Newly setting set of Claims 1-6 and 11 as well as newly added **four** independent Claims 25, 26, 27 and 28 are each directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: In comparison with amended

composition Claims 12 and 23, newly setting **Claims 1-6 and 11 are new process claims.** **They are “independent or distinct” from the invention originally claimed.** To be more specific, **Claims 1-6 and 11 as well as other four independent Claims 25, 26, 27 and 28** each relates to a process of producing a fluoropolymer, while **Claims 12 and 23** is a fluoropolymer composition.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. It is noted that the limitation of **Claims 12 and 23 is more closely related to the claimed limitation originally disclosed.** Accordingly, **Claims 1-6 and 11 as well as Claims 25-28 are all “withdrawn from consideration as being directed to a non-elected invention”.** See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 1-6 and 11-28 with seven independent claims (Claims 1, 2, 12, 25, 26, 27 and 28) are now pending, while **non-elected Claims 1-6, 11, 13-22 and 24-28 are thereby all withdrawn from consideration.** An action follows.

Response to Argument

3. Applicant's argument filed on May 5, 2008 has been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows: In view of current situation that composition Claim 12 along with its dependent Claim 23 is now

pending which are having different scope from previous scope, previous three 102(b)/103(a) rejections are withdrawn, while 103(a) rejection under primary reference Araki is now modified with additional reference Morgan. **Final office action is thereby applied** as follows.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The limitation of parent **Claim 12** of the present invention relates to **a fluoropolymer composition comprising two components including: (A) an oligomer- containing or oligomer-free fluoropolymer and (B) an electrically conductive filler.**

*said copolymer comprising **tetrafluoroethylene** unit and a perfluoro monomer unit derived from a **perfluoro monomer** $\text{CF}_2=\text{CF-Rf}^d$ (i), wherein Rf^d represents $-\text{CF}_3$ or $-\text{ORf}^2$, and Rf^2 represents a perfluoroalkyl group containing 1 to 5 carbon atoms, and*

*wherein **the content of oligomers** having a number average molecular weight of not higher than 10,000 is not higher than 0.05% by mass relative to the mass of said fluoropolymer which fluoropolymer composition gives an extrudate strand showing a surface resistance value of **not higher than $10^9 \Omega\cdot\text{cm}/\text{cm}$** when charged into a melt indexer,*

*said **fluoropolymer is produced by a method** which comprises the steps of removing oligomers by **extruding a fluorine-containing ethylenic polymer obtained by polymerization using an extruder having a vent mechanism equipped with a pressure reducing device.***

*See other limitations of dependent **Claim 23**.*

6. **Claims 12 and 23 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Araki et al. (US 6,680,124 B1** or its equivalent **WO 99/45044**) in view of a combination of Cananaugh et al. (US 5,237,049 or its equivalent WO 94/05706), Akihiko et al. (JP 06-080733), Ohtani et al. (EP 472,908 A2) and Morgan et al. (EP 150,953 A2) for the reasons set forth in paragraphs **12-15** of office action dated 2-6-2008 as well as the discussion below.

7. With current amendment, composition parent **Claim 12** along with its dependent **Claim 23** is now pending; originally dependent **Claim 12** is now rewritten as independent form as a

fluoropolymer composition. All non-elected Claims 1-6, 11, 13-22 and 24-28 are withdrawn from consideration.

8. Applicants have now claimed in parent **Claim 12** an unexpected way of obtaining an oligomer-containing or oligomer-free fluoropolymer comprising TFE and $\text{CF}_2=\text{CF}-\text{R}_f^1$, wherein R_f^1 represents $-\text{CF}_3$ or $-\text{OR}_f^2$, and R_f^2 represents a perfluoroalkyl group containing 1 to 5 carbon atoms, wherein said oligomer has **a molecular weight of not higher than 10,000** and amounts to **not more than 0.05% by mass** relative to the mass of said fluoropolymer, and wherein **fluoropolymer is now produced by a method** which comprises the steps of removing oligomers by **extruding a fluorine-containing ethylenic polymer obtained by polymerization using an extruder having a vent mechanism equipped with a pressure reducing device**.

9. **With respect to Araki's many copolymers, at least some comprises the use of both TFE and $\text{CF}_2=\text{CF}-\text{R}_f^1$, see the disclosure at column 6, line 21-27.** Araki has further added some filler including carbon fiber and **carbon (black)** to his adhesion material (column 9, line 39-43). It is noted that carbon black will enhance the electric conduction as known in the art. Therefore, for the claimed fluoropolymer **composition** Araki is now silent of **two** things including: **(A) oligomer along with the claimed "specific" amount of not more than 0.05 wt% in fluoropolymer, and (B) the oligomer is removed by using an extruder having a vent mechanism equipped with a pressure reducing device.**

10. **With respect to the silent (A), three** references including **Cananaugh, Akihiko and Ohtani** in combination or alone has taught such a subject matter. For instance, each of Cananaugh, Akihiko and Ohtani has disclosed the preparation of some TFE-containing fluoropolymers with reduced impurities (which is including lower oligomer content and/or surfactant) by extracting TFE-containing fluoropolymers with a fluorine-containing solvent such as **perfluoroalkane** compound to the desired purity (with the claimed amount of oligomer). By doing so, the adhesion of fluoropolymer to themselves and other material can be improved (see Cananaugh at abstract, line 7-9).

11. **With respect to the silent (B), Morgan** (cited in newly submitted IDS) has taught such a subject matter. For instance, in the course of purifying fluoropolymer, a twin-screw extruder or a single screw extruder each with vacuum applying can be used. See table I at page 10, line 8-22. By doing so, thermal stability of fluoropolymer can be thereby improved since all sources of volatiles may be reduced. See page 1, line 4-15.

12. In light of the fact the involved references are for the same or similar application purpose as well as some or similar TFE-containing fluoropolymers are involved, one having ordinary skill in the art would therefore have found it obvious to modify Araki' process of making an adhesion composition by **using an extruder having a vent mechanism equipped with a pressure reducing device** as taught by Morgan as well as **purifying it until the oligomer amount being at the desired purity** (with the claimed amount of oligomer) as taught by Cananaugh, Akihiko or Ohtani. By doing so, one would expect that lower oligomer content

and/or surfactant can be thereby achieved so as to improve thermal stability as well as the adhesion of fluoropolymer to themselves and other material.

13. In summary, previous three 102(b)/103(a) rejections are withdrawn, while 103(a) rejection under primary reference Araki is now modified with additional reference Morgan.

Final office action is thereby applied

Conclusion

14. Applicant's amendment **necessitated the new ground(s) of rejection presented in this Office action.** Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Vasu Jagannathan, can be reached on (571) 272-1119. The **fax** number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/
Primary Examiner, Art Unit 1796

/Henry S. Hu/
Examiner, Art Unit 1796

October 22, 2008